

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
August 1999

This report summarizes Los Alamos National Laboratory (LANL) activities that were completed during August of fiscal year (FY) 1999 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities explicitly described in the CMS plan ([LA-UR-98-3918]) submitted to the New Mexico Environment Department-Hazardous and Radioactive Materials Bureau [NMED-HRMB] on 9/30/98) and other related activities are described here.

Description of Activities and Contacts

RCRA Facility Investigation (RFI) Report and CMS Plan— There was no new activity.

Best Management Practices (BMPs)—BMPs were inspected weekly during August following significant rainfall events. All of these BMPs including straw bales, diversion dams and diversion piping are designed to minimize run-on and runoff from the contaminated outfall area. Department of Energy Oversight Bureau (DOE-OB) personnel report that no flow from the outfall trough was observed during a site visit.

CMS Hydrogeologic Investigations—CMS hydrogeologic investigations include ongoing Phase II RCRA Facilities Investigation (RFI) sampling as well as initiation, at risk, of investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling included sampling Sanitary Waste System Consolidation (SWSC), Burning Ground, and Martin Springs every other day for bromide, other anions, and stable isotopes. The results of August sampling are in process. No new bromide breakthrough has been observed in samples to date. Wells, both alluvial and deep, were checked weekly for water level and presence of water. All five alluvial wells contained water. The Martin spring intermediate-depth borehole contained water during the first week of August. This well water was previously sampled and submitted for analysis in July. The other intermediate-depth boreholes did not contain water.

Stable isotope investigations, as outlined in Section 6.3.2 of the CMS plan, were continued. In August, five rainwater samples from precipitation events were collected and were analyzed for stable isotopes.

The transducers and automated data loggers that were installed at the three springs and in the alluvial boreholes appear to be producing good data for water level, temperature, and conductivity. These data are being compared to data from hand instruments to ensure accuracy of the automated data loggers.

A stream profile of Canon de Valle was completed. Laboratory samples were not collected because flow conditions were not significantly different than conditions observed during July.

The report on the high-resolution resistivity (HRR) geophysics survey was received from Hydrogeophysics Inc. Data from this survey suggest that there are low resistivity zones in the stream channel and at a location on the south side of the canyon. The latter may represent a high-permeability zone with high water content within the Bandelier Tuff.

Geomorphologic mapping in Canon de Valle and Martin Springs Canyon, as outlined in Section 6.3.5 of the CMS plan, was continued by the principal investigator, Steve Reneau of the Canyons Focus Area. He collected another series of over fifty screening samples from which laboratory samples will be selected during the on-going investigations.

LANL personnel met with NMED-HRMB representatives on August 11, 1999. One agenda item was to continue to discuss the future of deep groundwater investigations. NMED-HRMB representatives indicated that they would need to meet internally to decide how best to incorporate deep-groundwater investigation results into the CMS process.

A decision peer review of the Deep Groundwater Addendum to the CMS plan was held on August 18, 1999. There were no major issues identified by the peer review team. A draft of the Deep Groundwater Addendum was written and provided to High Explosive Production Sites (HEPS) Team members for review.

Ecological Risk Pilot—The ecological risk team is completing the ecological screening using the modified protocol. The new screening results will include water pathways and multimedia assessments for wildlife receptors. The results of the ecoscreen will be incorporated into the Cañon de Valle problem formulation. The problem formulation is being developed in accordance with the NMED meeting summary from November 24, 1998 and the EPA guidance that was published in 1998.

CMS Bench and Pilot Studies—Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Four studies are ongoing under the auspices of ITRD, all of which may benefit the PRS 16-021(c) CMS:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters. Water from Canon de Valle is being used in the study.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). This is being completed by the University of Nebraska/H&H Ecosystems using PRS 16-021(c) soil. This soil was taken from a moderately contaminated location within PRS 16-021(c) and does not constitute a RCRA-regulated hazardous waste (based on results from laboratory analysis).
3. A study of anaerobic insitu bioremediation of HE using gas-phase carbon additions. This study is being completed by Idaho National Engineering and Environment

Laboratory (INEEL), together with Texas Tech University, using Pantex soil and a Pantex field site.

4. A study of *ex-situ* anaerobic bioremediation of Pantex soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment.

Regarding the first study, potential implementation of this technology was discussed with NMED-HRMB representatives in a meeting on August 11, 1999. Hazardous and Radioactive materials Bureau (HRMB) representatives indicated that they needed to meet with representatives of other NMED bureaus such as the Surface Water and Groundwater Bureaus before they could decide how to proceed with pilot-scale implementation of the technology in Canon de Valle.

Regarding the second study, the University of Nebraska/H&H Ecosystems study of ZVI remediation in building TA-16-224 was continued in August 1999. Samples from all five experiments were collected at 10 and 20 days and submitted for both screening and laboratory analysis. Results are pending.

Regarding the third and fourth studies, no new results were received.

Interim Measure (IM) – A planning meeting for the IM was held with the HEPS Team and with Environmental Restoration (ER) Regulatory Compliance Focus Area personnel. Paths forward for waste excavation, staging, segregation and treatment were discussed in detail. The preliminary strategy for the IM was presented to NMED-HRMB personnel on August 11, 1999. Key issues that were identified as needing regulatory involvement were:

- A contained-in determination for potential F-listed wastes.
- Expedited paths forward for RCRA permitting that may be required to support the IM.

In a follow up phone call, HRMB representatives indicated that a Temporary Authorization of a new treatment unit might be an effective method of proceeding with RCRA-waste treatment.

LANL personnel investigated using naturally occurring radioactive materials (NORM) and authorized limit determinations to expedite disposal of low-level uranium-contaminated soils. Several Treatment, Storage and Disposal (TSD) facilities were contacted to investigate their requirements for handling NORM and authorized limit materials. LANL personnel decided to collect additional samples for isotopic uranium to support the NORM determination.

A decision peer review for the IM plan was held on August 18, 1999. There were no significant comments from the peer review team.

The rough draft of the IM plan was begun. The draft is approximately 70 % complete.

Public and Stakeholder Involvement—No stakeholder meetings or tours were held in August.

Percentage of CMS Completed

LANL estimates that 27% of the CMS has been completed to date.

Problems Encountered/Actions to Rectify Problems

CMS Geohydrologic Investigations

Problem (1) ER Project personnel are still having difficulty installing flow-integrated samplers. Key parts are on back-order with the manufacturer.

Problem (2) The lack of a completed well at R-25 remains a significant concern to the TA-16-260 team.

Action to Rectify Problem (1): HEPS personnel have contacted the manufacturer and have requested expedited delivery of the parts.

Action to Rectify Problem (2): The Canyons Team will try to successfully complete the well.

CMS Bench and Pilot Studies

No problems were identified this month.

Key Personnel Issues

There were no changes to the key personnel for the CMS project during this reporting period.

Projected Work for September 1999

RFI Report and CMS Plan

- LANL will continue work on an addendum to Section 6 of the CMS plan. This addendum will outline deep drilling requirements for determining the nature and extent of contamination in the regional aquifer at TA-16.

BMPs

- Inspection of existing BMPs following significant rain events will continue. Due to large amounts of precipitation, LANL will continue to inspect these BMPs weekly.

CMS Hydrogeologic Investigations

- Continued bromide sampling of springs.
- Weekly checking of water levels and presence of water in alluvial and deep wells.
- Deployment of flow-integrated ISCO samplers.
- Continued precipitation monitoring and sampling for stable isotopes.
- Verification that transducers deployed in the alluvial wells and springs are providing data that is consistent with hand-held instruments.
- Continuation of Canyons-type “reach investigations” in Canon de Valle and Martin Spring Canyon, including laboratory sampling of trenches and floodplain deposits.
- Continuation of quarterly sampling.

Ecological Risk Pilot

- Continue specific problem formulation for the aquatic and terrestrial endpoints in Canon de Valle. Incorporate third and fourth quarter 1998 data into this analysis (to be done by ecological risk team).

CMS Bench and Pilot Studies

- Sampling the ZVI treatment test for performance at ten-day intervals.
- Follow-up with NMED on discussion items from August 11, 1999 meeting.

IM

- Completion of peer review draft of the IM plan (pending resolution of key regulatory issues).
- Presentation on IM to operating group.
- Preparation for readiness review including completion of SSHASP, ESH-ID, WCSF and NEPA documents. Additional subcontracting for fieldwork.

Public and Stakeholder Involvement

- None planned for September.